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[Spencer
Steam, Vapor, Hot Water
Heaters]



Catalog Twenty
1925

SPENCER

STEAM, VAPOR
AND HOT WATER
HEATERS



STANDARD HEATER COMPANY

General Offices:

WILLIAMSPORT, PA.

BOSTON
NEW YORK
PHILADELPHIA
BALTIMORE
WASHINGTON

BUFFALO
ROCHESTER
SYRACUSE
SCHENECTADY
SCRANTON

A General Statement of the Advantages of Spencer Steam, Vapor and Hot Water Heaters

The Boiler is the Heart of Any Heating System.

How to Judge a Boiler.

One-third to One-half Lower Coal Bills.

Coaling But Once a Day.

Investment Features of the Spencer.

The Proofs.

Spencer Steam, Vapor and Hot Water Heaters are especially designed and built to burn No. 1 Buckwheat Anthracite. In emergencies any grade or size of hard coal can be burned.

Pea Coke, Coke Screenings, Non-Coking Bituminous Coals, Semi-Anthracite, Lignites, as well as Coking Coals when properly mixed with Non-Coking Coals, can also be burned in the Spencer. As compared with other boilers which may also burn these fuels, the Spencer reduces heating cost because it requires fewer tons.

In comparison with boilers in which the large sizes of anthracite must be used, the Spencer greatly reduces coal bills because it requires no more tons of the cheap fuels mentioned above, than ordinary boilers do of the larger, expensive grades of hard coal.

Taking the actual experience of thousands of owners as a basis, we can say that the Spencer averages savings on coal bills of from ONE-THIRD to ONE-HALF.

The Spencer requires coaling but once a day in ordinary winter weather, never more than twice.

It maintains steady, even heat for from 10 to 12 hours without attention, even in severe weather.

Tried and tested in practical use for over 25 years, under most severe climatic conditions, Spencer Heaters have always proved their economy and superiority.

Improves Any System

THERE is no need to deal in generalities in stating the case for Spencer Heaters. They have definite, vital advantages. The most important of these advantages are noted in brief on the previous page. We think that no better preface can be given to a book intended to assist in answering the question—Which is the right boiler for me to use?



Which is the right boiler for me to use?

you will at once make up your mind to install a Spencer. But, if it leads you to consult your architect, heating contractor or ourselves with a view to learning just how the Spencer will meet your heating requirements more efficiently, more economically and with greater convenience than any other boiler, we will feel that the book has served its purpose.

The Boiler the Heart of Any Heating System

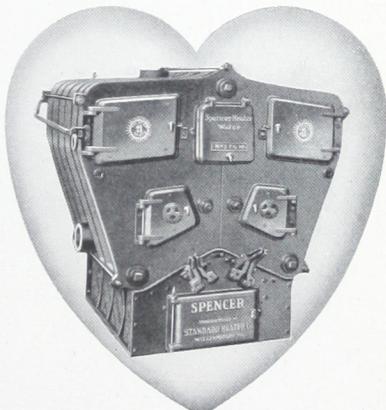
It will be well at the very outset for the reader to bear in mind that the boiler is the heart of any heating system.

There are many steam, hot water, vapor-vacuum or modulated systems of heating.

They can be described briefly as devices, valves or attachments added to the boiler, pipes or radiators, but they are in no sense a part of the boiler itself. They will usually add to the efficiency of any boiler, but, of course, the better the boiler, the better the results with the system.

The prospective buyer should not lose sight of the fact that the Spencer Heater is perfectly adapted to all steam, hot water, vapor-vacuum or modulated systems of heating and enables any system to give the best possible results.

In the chapters which follow, detailed descriptions of all the various Spencer features are given. In this chapter we will confine ourselves to a general description, so that when the details are reached the relationship will be better understood.



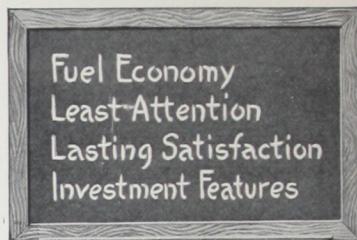
"The Boiler is the heart of any heating system"

How to Judge a Boiler

This whole matter of—Which is the right boiler?—you can see really narrows down to a very few vital questions. They are as follows:

- Is It the most economical in fuel cost?
- Will it maintain steady, even heat for the longest periods, with the least attention?
- Will it give lasting satisfaction?
- Will it be a paying investment?

Let us see how the Spencer answers these questions.



These are the vital points bearing on the wise choice of a boiler

Is it the Most Economical in Fuel Cost?

The question of economy in fuel cost comes first.

In fact, it was the problem of how to burn the small size, low priced anthracite, that caused George F. Spencer over 25 years ago to design the Spencer Heater. How successfully the idea has been worked out and perfected is shown by the thousands of installations giving satisfactory service to-day.

So, before choosing any boiler, you should investigate carefully what it will cost to keep it going.

As pointed out at the beginning of the book, the Spencer burns successfully the cheap grades or sizes of coal. It is the experience of Spencer owners that they require a smaller amount of these cheap fuels than when burning the same grades in other boilers, under the same conditions. The saving is obvious.

On the other hand, if you are located where hard coal is generally used, or if you desire to use anthracite for its cleanliness and convenience, you need not limit yourself to a boiler in which the large sizes must be used. The Spencer burns no more tons of the smaller, cheaper grades of anthracite, such as No. 1 Buckwheat, than ordinary boilers require of the larger, expensive sizes. Get a quotation on these sizes from your coal dealer, and you will appreciate the remarkable saving possible with the Spencer.

**One-third to
One-half Lower
Coal Bills**

Thousands of Spencer owners average savings of from \$4 to \$7 per ton and many are still saving \$100 or more annually with Spencers installed 25 years ago. And in hundreds of instances, in all types of buildings, Spencers have replaced other boilers and saved enough in fuel cost to pay for themselves in a few years.

Will the Spencer Maintain Steady, Even Heat for the Longest Period with the Least Attention?

Coaling But Once a Day

The Spencer is what is known as a magazine feed boiler. Its water-jacketed magazine holds a supply of coal in reserve, feeding automatically as needed.

This supply will usually last for 24 hours, and for at least 12 hours in the most severe weather. In other words, the Spencer ordinarily requires coaling but once a day, and insures a steady, even temperature, at the lowest estimate, from 10 to 12 hours without any attention.

Will the Spencer Give Lasting Satisfaction?

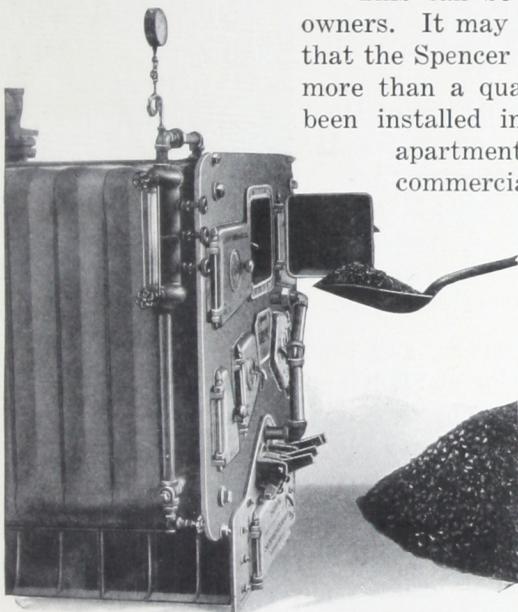
This can be best answered by Spencer owners. It may be enough to mention here that the Spencer has been on the market for more than a quarter of a century. It has been installed in thousands of residences, apartment houses, public buildings, commercial buildings, etc., in various sections of the country. Many Spencers, after being in use a generation or more, are still doing good work and saving their owners large sums annually.

The time and labor saving feature is a wonderful advantage in the home.

The housewife does not have to bother attending the heater during the day. She can do her home work, entertain or visit friends,

or go shopping all day, with never a thought about the fire. The Spencer will not need attention until the men come home.

Or when the family comes home late at night, from the theater or an entertainment, the home will be warm and comfortable, and it won't be necessary to fix the fire for the night—it will carry through to the following morning.



The Spencer ordinarily requires coaling but once a day

Will the Spencer Be a Paying Investment?

Investment Features of the Spencer

A boiler is a long-term investment. The annual cost of fuel and repairs, plus how efficiently it operates and how much attention it requires, and not the first cost, determine which boiler is the best investment.

The man who is building a dwelling for his own use must always consider the possibility of selling or renting in the future. Nothing has so much bearing upon the renting or selling value of a residence as the heating plant. The first question any prospective buyer or tenant may ask is, How is it heated? Without an economical, efficient boiler, the finest house in other respects loses its attraction. A Spencer in the cellar is a great aid in selling or renting, because of its remarkable money and labor-saving features and wonderful heating efficiency.

To apartment house owners, and others who build for investment, the problem of attracting and holding tenants is most important. The Spencer is THE boiler for apartments, houses and flats, not solely for its unusual economy, but because it makes possible even heat all night without attention. The importance of this feature for greenhouses and garages cannot be over-estimated.

The Proofs That the Spencer does reduce coal bills—that it does require coaling ordinarily but once a day and never more than twice—that it does maintain even heat for from 10 to 12 hours without attention, is proved by the experience of thousands of owners, in various localities, under all conditions, in all types of buildings.

The endorsement of users is practical proof of its superiorities. We will gladly send you a list of names and addresses in your own city where you can see Spencer Heaters in successful operation.



Grades and Sizes of Coal

Anthracite as it comes from the mines, is in various sizes, ranging from large lumps to very small pieces, and even in powdered form.

It passes through an elaborate process of preparation before it is delivered to the consumer.

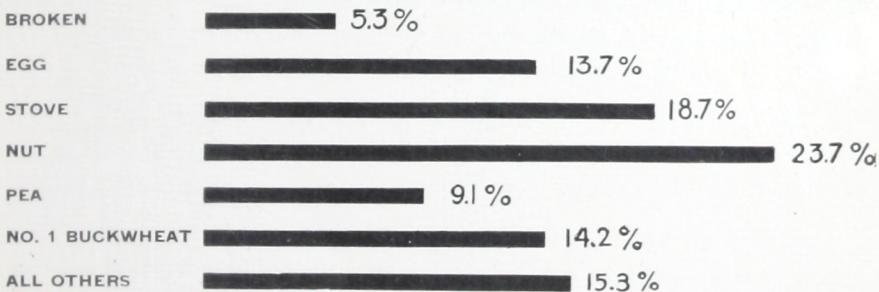
It is graded by being passed over screens with different size meshes. For example anthracite which will pass through a $1\frac{3}{4}$ " mesh and over a $1\frac{1}{4}$ " mesh is generally known as "chestnut" or "nut" coal.

However, the names and sizes are not standardized over the entire country. A certain grade may be known by different names in different localities.

The Spencer Heater is especially designed and built to burn the small, less expensive sizes, such as No. 1 Buckwheat, and does it satisfactorily.

It is well to remember that No. 1 Buckwheat Anthracite has the same heating qualities as the larger sizes. It is the same coal, the only difference is in size and price.

The following chart shows the average proportion of the various sizes of anthracite in one hundred tons. This information is taken from the reports of the United States Geological Survey from 1916 to 1920 inclusive:



You will note that out of every hundred tons of coal mined over fourteen tons are No. 1 Buckwheat.

From ten to twelve million tons of No. 1 Buckwheat are produced annually, and this vast quantity is very much in excess of the demand for domestic heating purposes. A supply has always been available at a low price—even in times of disturbances in the mining industry.

Spencer Heater Tests

We have one of the most completely equipped testing plants in the country, where our own engineers conduct research and development work, and make analytical tests.

In addition to our own research work, numerous tests have been made in the laboratories of prominent universities, as well as in everyday performance in thousands of installations.

These test sheets, prepared by men thoroughly experienced in the study of fuel combustion and the best principles of utilization of the heat units developed, show that the Spencer unquestionably cuts fuel costs. Savings of one-third to one-half in coal bills are nothing unusual. The specially designed magazine reduces the labor of coaling and assures steady, even heat day and night with the minimum of attention.

The following were taken from the many test reports we have on file:

At the University of Colorado the Spencer, using the low priced natural coals peculiar to the Rocky Mountain region, such as Lignite, Semi-Bituminous and Slack, and the small cheap sizes of Colorado and New Mexico Anthracite, required attention but once in 8 to 12 hours and developed more than its rated capacity; showed a higher efficiency and generated steam at a cost 30 to 60 per cent. lower than surface feed boilers, which did not develop their rating, and required four or five times as much attention as the Spencer.

The University of Michigan cites one case where, using Buckwheat Anthracite, the boiler ran sixteen hours without attention and developed its full rating.

A test at Yale University showed that, using Yard Pea Coal, which is equivalent to No. 1 Buckwheat, the boiler operated thirteen hours without attention, even when it was developing a capacity considerably greater than that for which it was rated.

Records kept at the plant of the Simmons Hardware Company in Philadelphia, show a comparison of the Spencer's fuel bills for six months with that of surface feed boilers for seven months, with a saving of 44 per cent in favor of the Spencer on the cost of operation. It was only necessary to replenish the magazine every 12 hours.

Advantages of the Spencer Magazine Feed

In the Residence.

In Apartment Houses.

Heat All Night Without Attention.

In Greenhouses.

The Spencer is Adapted to All Types of Buildings.

What Automatic Regulation Means.

In the Residence

To keep the ordinary boiler going, it is usually necessary to "coal up" several times a day. In residences where there are no men-servants it is usually the unpleasant duty of the women folk to look after the boiler, and it is no woman's job.



**Don't let your wife
shovel coal**

In Apartment Houses

While the Spencer is the best for residences, for apartment houses it is absolutely THE boiler.

In the first place, it saves actual cash in reduced coal bills. But while the question of economy is most important a very close second is—how to attract and hold tenants at the best rentals.

The Spencer, because of its magazine feed, will maintain steady, even heat for from 10 to 12 hours in severe weather without attention. In average winter weather, one coaling will be sufficient for 24 hours. The Spencer thus relieves the women of a household of all care of the boiler, as the men folk can attend to the coaling morning and evening.

The advantages of the magazine feed of the Spencer are also appreciated by those who desire heat all night, or in cases of sickness in the home. The Spencer assures warm rooms late at night and early in the morning.

Apartment Houses

Heat All Night With- out Attention

The Spencer, by maintaining heat all night without attention, means the elimination of complaints from tenants that rooms become cold too early in the evening, due to the janitor going home, or banking the fire for the night. It enables those who desire it to have heat all night. With the Spencer there is no alternate over-heat and under-heat; but steady, even temperature as desired.

Modern apartment houses are better heated when equipped with Spencers, and tenants are certainly better satisfied with the heating service.

One owner whose apartment was equipped with surface feed boilers—and as good as any surface feed boilers made—found it extremely difficult to get tenants. On investigating, he learned that many prospective tenants inquired if there was a Spencer in the building, and they would not take apartments where there was none. This owner later installed the Spencer.



Apartment House, 135 So. 18th St., Philadelphia. Architects: McIlvain & Roberts, Philadelphia. Heating Contractors: Frederick Sabin & Co., Philadelphia

McILVAIN & ROBERTS
Architects
PHILADELPHIA, PA.

Standard Heater Company,
Williamsport, Pa.
Gentlemen:

Ten years ago, in 1913, we installed four No. 21 Spencer Tubular Steam Heaters in our Apartment House, 135 South 18th Street, Philadelphia, Pa.

We are more than pleased with the good service these boilers have given. The apartments are always well heated, even when the weather is severely cold. Expenses for repairs and replacement parts have been practically nothing—not over \$25.00.

We burn Buckwheat coal, the cost of which averages five to six dollars less per ton than we pay for larger sizes. As a general rule, the magazines have to be refilled but once every 24 hours. We do not employ a night fireman.

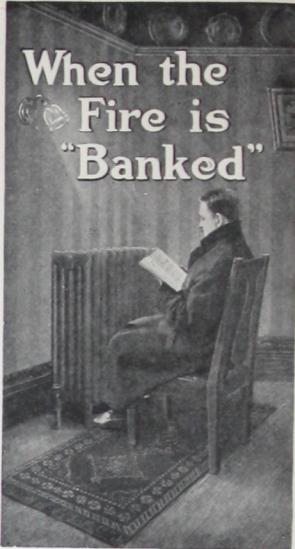
Spencer Heaters are also installed in our Otis Building, a 13-story office building in Philadelphia, as well as in three apartment houses we designed and operate at Haverford, Pa.

As owners and operators of these and various other buildings we have determined by actual comparison that Spencer installations have proved the most efficient and economical.

Our new 15-story Apartment house, 18th Street and South Rittenhouse Square, Philadelphia, will be heated with Spencer Heaters because they assure us of maximum heating capacity at lowest operative costs.

In consequence of the wonderful record we have of Spencer economy of operation and maintenance, we are specifying them in a number of new residences, apartment houses and other buildings which we have in process of construction.

Very truly yours,
McILVAIN & ROBERTS.



In an apartment house where there is no Spencer

Greenhouses



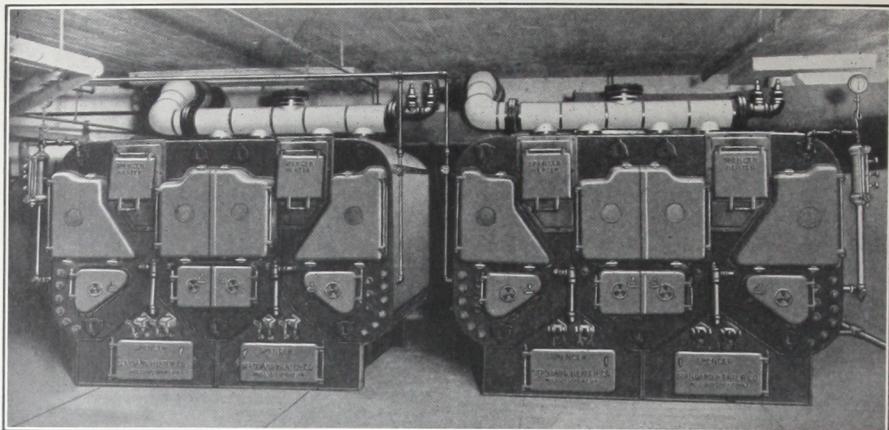
Floral Hill Gardens, Chatham, N. J. Spencer Heaters keep these greenhouses at even, steady temperature, improving quality and quantity of flowers. Coal bills greatly reduced and extra fireman's salary saved

In Greenhouses The possibility of frost must be constantly guarded against. Where there are surface feed boilers, it is the usual custom in severe weather for a man to stay and attend to the fires, until relieved in the early morning by another man; or the alternative of employing a night fireman.

The Spencer, however, positively maintains steady, even heat all night, even in very severe weather. Filled in the evening, the Spencer can be relied upon to keep up a proper temperature until the following morning. The reserve coal supply in the magazine is there to respond to extra demands on the boiler, due to sudden drops in outside temperature. It entirely relieves the owner of any anxiety as to frost, because the magazine feed makes automatic regulation really dependable and efficient.

These features alone would make it the best for greenhouses. When to them you add the remarkable economy in fuel cost, there is every reason why the grower who now has a surface feed boiler should thoroughly investigate the Spencer.

Automatic Regulation



A battery of two Spencer Tubular Steam Heaters installed in the plant of the Hensel Colloday Co., by Frank E. Hahn, architect and engineer, and Walters, Purks and Mellon, heating contractors, Philadelphia, Pa.

The Spencer is Adapted to All Types of Buildings

All the following types of buildings are equally well served by the Spencer. Its record shows the same money and labor saving features in both small and large buildings.

Public and Office Buildings	Theaters
Schools	Apartment Houses
Colleges	Country Clubs
Hotels	

City and Country Residences	
Small Houses	Factories
Churches	Garages
Hospitals	

The Spencer will hold fire for several days without attention. The importance of this in churches, schools and other buildings, where the fires are banked for days, is apparent.

In the residence with a Spencer, you can leave for a week-end and return to find your fire still alive. Some users find that they seldom have to rebuild the fire during an entire season.

What Automatic Regulation Means

To maintain, automatically, a certain degree of temperature throughout a building is not a question of the kind of regulator used. Practically all the reputable thermostats and regulating devices are efficient in themselves. But automatic regulators can only do their

work so long as there is a sufficient supply of coal in the boiler. Let the fire die down from lack of fuel, and, of course, the regulators are unable to operate until the fire is replenished—they cannot “put on” coal.

On the other hand, the Spencer magazine has a supply of coal in reserve sufficient to last from 12 to 24 hours.

The Spencer Magazine Feed and Sloping Grates in Detail

- A Water-jacketed Magazine.
- The Ordinary Magazine.
- Sloping Grates.
- Disadvantages of Flat Grates.
- The "Finger" Arrangement.
- For Mild Weather.
- Draft Control.
- Good Draft Essential.

A skillful fireman in a power plant fires frequently and lightly. He never piles the fire box full of coal or tries to put on enough at one time to last several hours. The reserve supply of coal, which gives the Spencer its long firing period, is held in the water-jacketed magazine and is fed constantly as the coal on the grates below burns and tends to shrink away from the throat of the magazine. Therefore, the Spencer magazine is firing frequently and lightly, efficiently and economically.

Compare this with the usual practice in ordinary heating boilers where, in lieu of frequent firing, the fire box is heaped with coal at the expense of proper combustion.

It is the combination of the Spencer magazine with its own unique grate construction that has made the Spencer successful in burning No. 1 Buckwheat Anthracite for over 25 years.

A Water-jacketed Magazine In the tubular heater the water-jacket consists of a series of parallel, closely laid water tubes. In the sectional heater the water-jacket is the inner face of the boiler itself; that is, a series of sections full of water which form the sides of the magazine.

In both types, the body of water in the water-jacket is part of the boiler's water supply. Being exactly above the fire, it increases the surface of the water exposed to direct heat, producing added efficiency.

The most important reason for this water-jacket, however, is to protect the coal in the magazine from the intense heat of the fire box, thus preventing any gases from forming in the magazine.

Under ordinary conditions, the temperature of the water in the steam boiler will not exceed 227° F. It takes about 977° F. to ignite coal, and as the coal in the magazine cannot possibly become warmer than the water in the boiler, one can easily see that the coal coming into the fire box is absolutely intact, not even having gases distilled off.

Advantage of Sloping Grates

The Ordinary Magazine The ordinary magazine has no water-jacket. The metal of the magazine forms a connecting link between the coal and the heat. In consequence,

the coal, becoming very hot, either burns, or the gases are distilled off before being discharged on the fire. The magazine of the ordinary self feed boiler will burn out in a few years. The magazine of the Spencer, on the contrary, is practically indestructible, owing to its protective water-jacket.

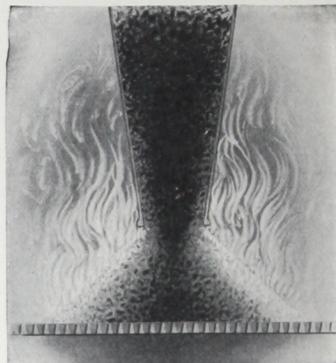
Sloping Grates But even the Spencer water-jacketed magazine would not be a success if it was not used in connection with the patented sloping grates.

The sloping grates, forming an "A" shape, are raised at approximately the natural slant of a pile of No. 1 Buckwheat—in other words, the angle of repose. As the coal feeds down from the magazine it is evenly distributed over the whole grate surface. The surface of the fire is always on the same line, the same distance from the heating surfaces, leaving always the proper amount of space above for combustion. Where the grates are flat, as in some other magazine feed boilers, an uneven depth of fire is obtained in the fire box. At the outer edges the fire is so thin that it burns out almost immediately; while in the middle it is so thick that improper combustion takes place.

In the Spencer even distribution of the coal is secured automatically, assuring perfect combustion. And perfect combustion means getting all the available heat out of a given amount of coal.

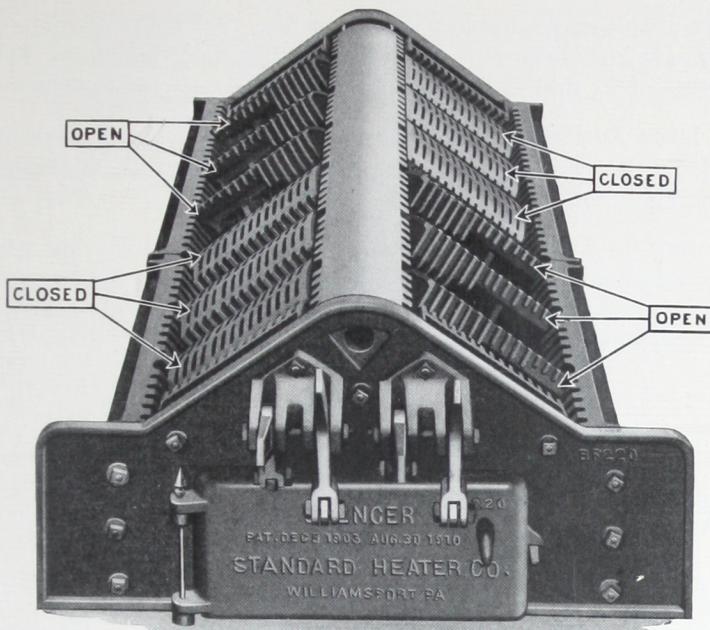
Disadvantages of Flat Grates In ordinary surface feed boilers the grate bars are flat, without support except at the ends. In

largest sizes the unsupported span reaches 4 feet. Owing to the greater amount of coal held in such deep fire box boilers, the grate bars are likely to warp and burn more easily. They are frequently jammed by large pieces of coal, and it is sometimes necessary to dump the entire charge of coal to release the grates.



Disadvantages of flat grate, and magazine without water-jacket

Spencer Sloping Grates



The "Finger" Arrangement of Spencer Sloping Grates

An exceedingly effective and coal-saving arrangement of the Spencer's sloping grates is its system of "fingers," ranging from long at the peak to short at the lower edge.

Each grate-bar is made on the pattern of the back of your hand; a hand as broad as the length of the bar, but with many fingers bent underneath. When the grate is in service the "back of the hand" is horizontal. When it is shaken the "back of the hand" becomes vertical and the bent "fingers" swing up into position with spaces between them. This is the moment when the shortening row of "fingers" gets in its effective work.

In the cut on this page, observe the arrows marked "Closed." The sections so indicated show the grate-bars horizontal, as they are in service, and you see how they stretch completely across. Then observe the arrows marked "Open." The sections so indicated show the grate-bars turned over, as they are when being shaken, and you see how the bent "fingers" are turned up, and how they gradually shorten towards the lower end. The upper long fingers still hold up the live coal, while the lower short fingers drop out the ashes which the first shake drives towards the lower edge.

This unique arrangement, which belongs to the Spencer alone, operates to break up clinkers, to prevent jamming, and to empty the ashes without losing the live coals. Its coal-saving value is evident.

Magazine and Grate Construction

The deep ash pit made possible by the "A" shape sloping grates, provides air circulation in the pit, and together with the shortness of the grate bar, makes the bars less liable to warp or burn out.

In large Spencer Tubular Steam Heaters each side of the grate is divided into two sections, the front half being shaken separately from the back half.

It may be well to mention that the fresh coal coming from the magazine does not make the available fire surface any less in a Spencer than in a surface feed boiler with flat grates of the same base measurement. The diagram shown below makes this plain.

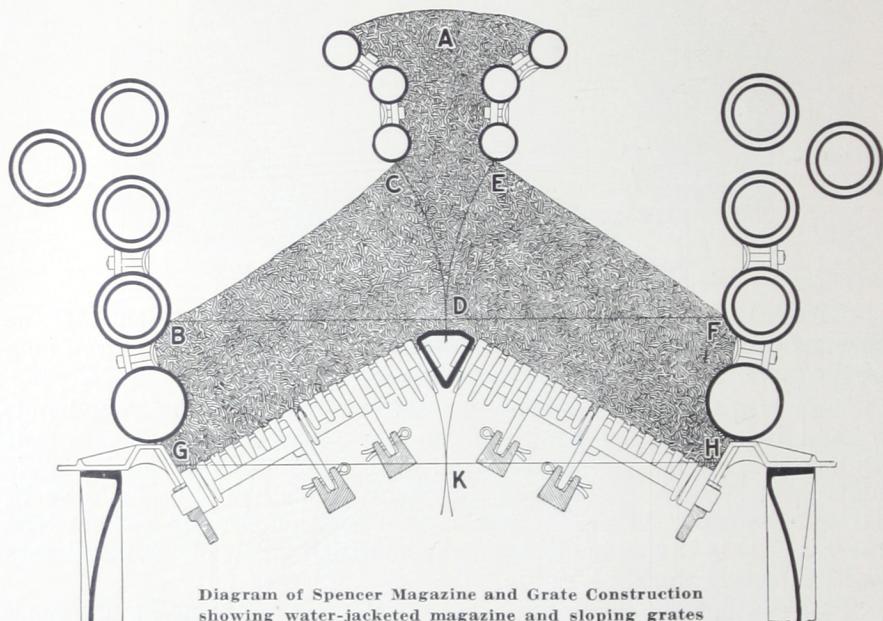


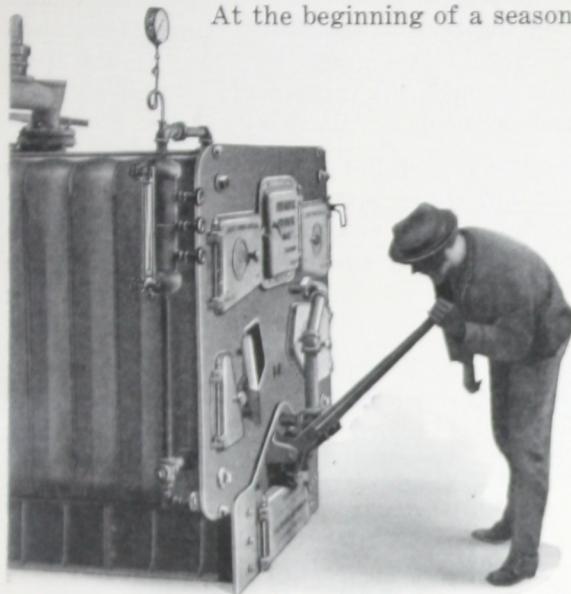
Diagram of Spencer Magazine and Grate Construction
showing water-jacketed magazine and sloping grates
with "finger" arrangement

Note that the space A (which is occupied by coal that is not ignited) does not decrease the actual fire or grate surface, as the radius of all the arcs is the same.

The highest point of the sloping grate is directly under the throat of the magazine. The double grates form an "A" shape, the two sections sloping down from the peak at the natural angle of repose which a pile of No. 1 Buckwheat Anthracite assumes when it falls from a single point. This feature assures an even depth of fire.

Reduce Capacity in Mild Weather

For Mild Weather On all of the large size Spencers by shaking one-half of the grate and allowing the other side to fill up with ashes, you can utilize but half of the capacity of the boiler, which will answer all requirements during mild weather.



Shaking one side of Spencer Grates

At the beginning of a season, when you are starting the fire, all that is required of the boiler is that it merely keeps the chill off. It is the same at the end of season, and you may hesitate to let the fire go out, fearing a recurrence of cold weather. At such times, with an ordinary boiler, you must still keep it going at its usual capacity. With a Spencer, on the other hand, by using but one side of the grates you can further economize on fuel and reduce the attention required.

Draft Control Each Spencer Heater is equipped with a combination hand operated or automatic pressure draft control. The dampers are easily regulated for controlling the draft, so that the boiler can be properly operated to meet differing weather conditions.

Good Draft Essential No matter what make of boiler is used, it is important that there be a good draft. The Spencer Heater does not require a different chimney area than is necessary for any other boiler of equal capacity.

If you have not the illustrated booklet, "An Ordinance for Properly Constructed and Designed Chimneys," recommended by the National Board of Fire Underwriters and endorsed by the National Boiler and Radiator Manufacturers' Association, we will be pleased to send you a copy upon request.

Spencer Tubular Steam Heater

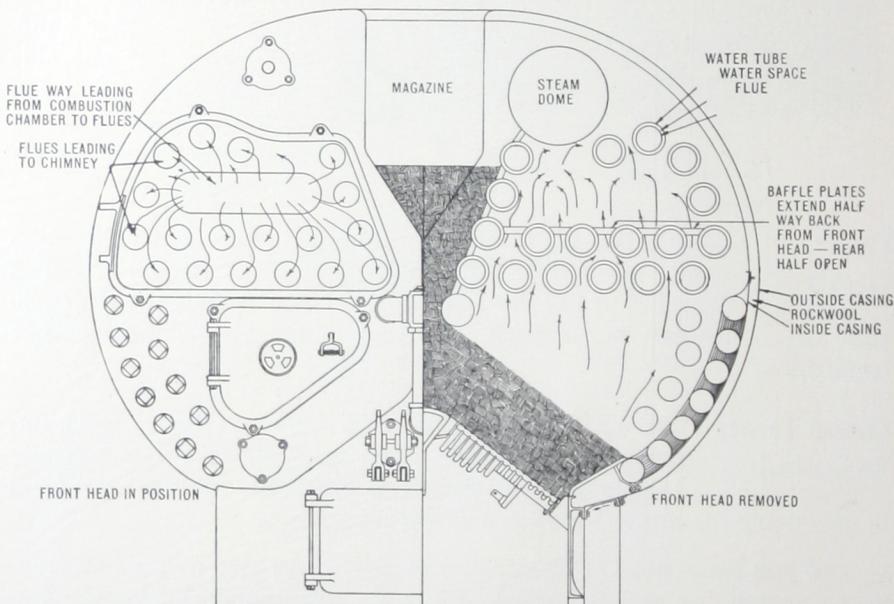
This type of heater is designed for steam or vapor installations in large dwellings, apartment houses, schools, churches, office buildings, etc.

Circulation in Spencer Tubular Steam or Vapor Heater

In the Spencer Horizontal Tubular Steam or Vapor Heater the tubes have an upward pitch from the rear to the front. The heated water therefore moves from the rear to the front, back through the large dome (which acts as a separator), completing the circuit down the rear headers.

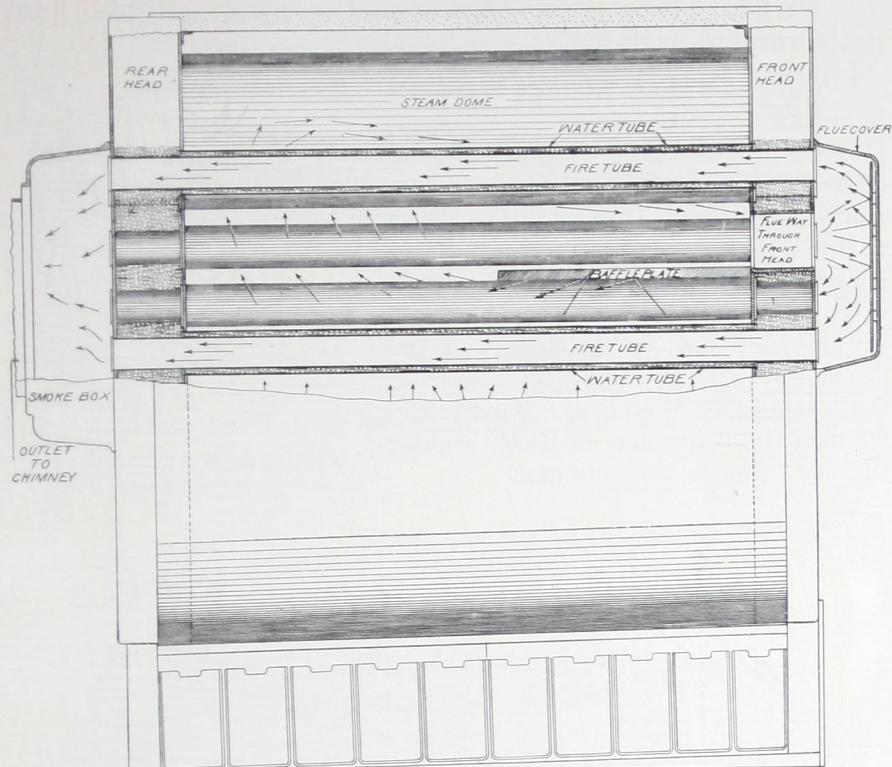
There is an entire absence of foaming and priming. The currents, though moving swiftly, do not throw spray nor form large bubbles. The domes are large enough to permit the water to move quickly and the steam leaves the boiler without any mechanically suspended water—in a dry state. This is the exception rather than the rule in ordinary boilers.

It will also be noted from the illustration below that the steam dome is over the fire. This causes super-heating of the steam, making it drier than the steam delivered by the ordinary boiler to the radiators.



Front view showing Combustion Travel in the Spencer Tubular Steam Heater. On the left side the flue cover is removed, and arrows indicate how the heated gases pass through flue way and back through the flues to chimney. On the right side the front head is removed, and arrows indicate how the heated gases travel around the water tubes. Shaded portion shows water-jacketed magazine filled with coal, and the even depth of fire on sloping grates.

Circulation in Spencer Tubular Steam Heater



Side view showing Combustion Travel in Spencer Tubular Steam Heater. Arrows indicate how the heated gases pass around the water-tubes, into the flue way and back through the fire tubes into chimney. Note how the baffle plate extends half way back from the front head.

Combustion Travel in Spencer Tubular Steam or Vapor Heater

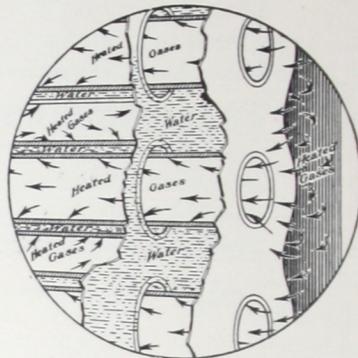
The tubular construction of the Spencer Tubular Steam or Vapor Heater not only provides for perfect circulation, but enables it to give the maximum amount of heat from the minimum amount of fuel. This leads to the question of combustion travel.

It is natural that the heat of a fire in a confined space will do just as much as it has a chance to do. Thus, in a boiler, the same quantity of water exposed to the same heat will boil more quickly or less quickly according to the arrangement of the water heating surfaces over and around the grates; or, according to the direct exposure to the fire.

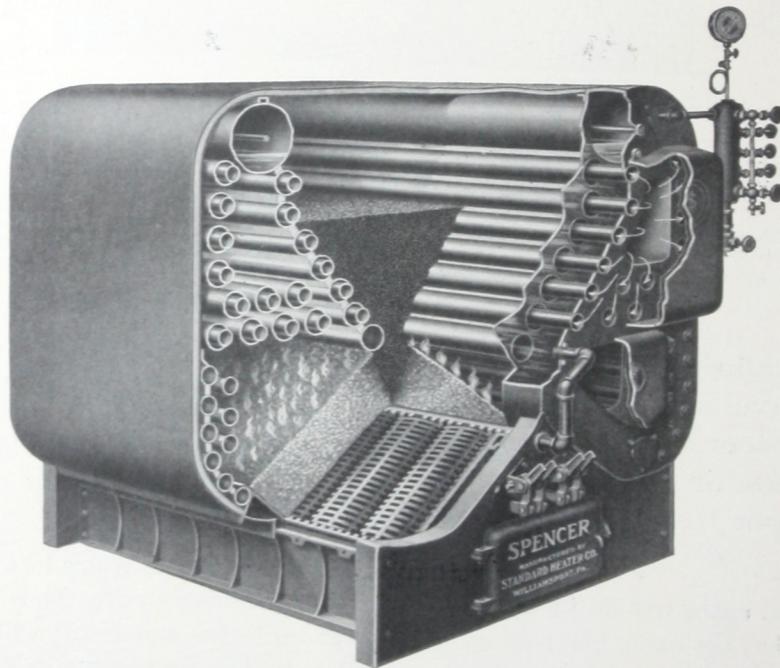
Circulation in Spencer Tubular Steam Heater

The illustrations on pages 18 and 19 show clearly how the heated gases travel through the Spencer Tubular Steam Heater.

The water is not in large bodies, as in ordinary boilers. On the contrary, it is split up into thin streams, and, of course, can be more quickly and economically heated than if in a large volume. Further, these thin sheets of water are attacked by the heat on two sides. The water is on the inside of the water tubes and on the outside of the fire tubes. The heated gases first strike the water tubes, then pass around to the front of the boiler and go back through the fire tubes to the chimney.



Showing the thin layers of water
in the Spencer



Interior View of Spencer Tubular Heater

Most Efficient Type of Tubular Steam Heater

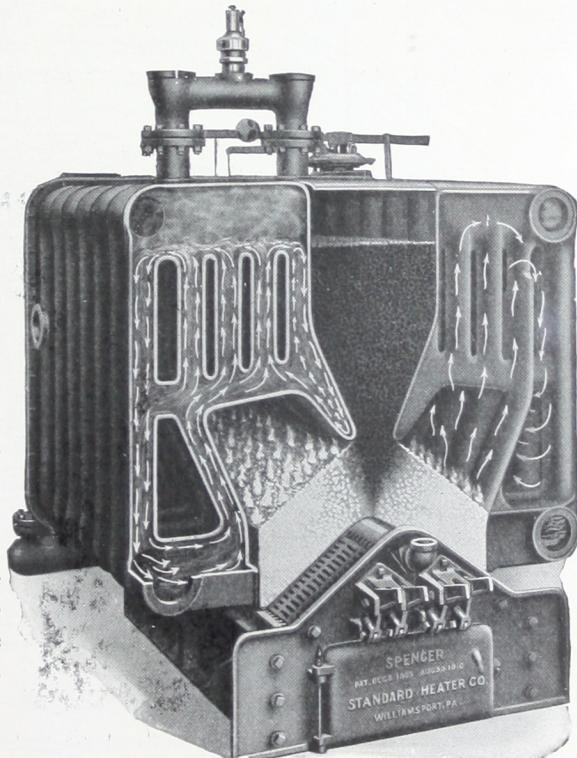
This type of tubular construction is known as the combination water-tube and return-tubular type. The tubular construction is recognized as the quickest steaming device for all steam boiler purposes.

The tubing used in Spencer Tubular Steam or Vapor Heaters is made from a special formula and in standard sizes, and every length is tested to a pressure of 500 pounds to the square inch.

The tubes are expanded into the heads in exactly the same manner as those in power boilers, which carry pressures many times greater than the Spencer is ever called upon to withstand. The heads themselves are two solid plates, made from the very best material, with a tensile strength of 60,000 pounds, and electric welded—the most durable construction.

Spencer Sectional Steam Heater

This type of heater, for steam and vapor installations, is constructed in smaller capacities than the tubular heater. It has all the advantageous features of the water-jacketed magazine, sloping grates, automatic feed and ease of operation. Less labor being required to produce and install the sectional type, prices are somewhat lower.



Interior View of Spencer Sectional Heater

Spencer Sectional Hot Water Heater

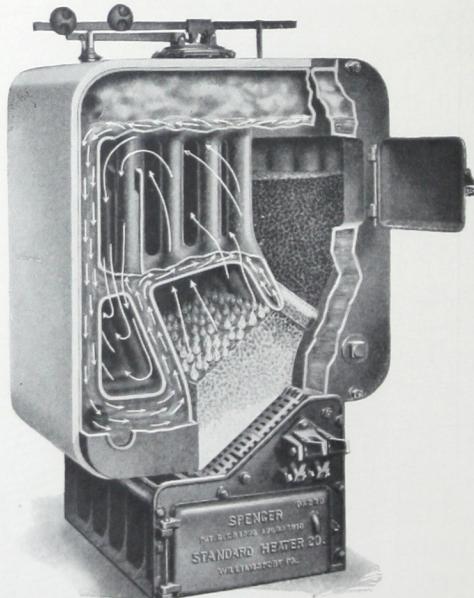
This heater, as well as the Sectional Steam Heater, is furnished in both single and double grate types. The single type grate, as illustrated below, is suitable for small dwellings. The double grate type, shown on the opposite page, is adapted to larger dwellings or buildings.

Circulation and Combustion Travel in Spencer Sectional Heater

To get the best results, the flue ways must be properly proportioned and arranged, and the water ways distributed in thin layers so as to absorb the greatest amount of heat from the fire.

These requirements have been fully met in the Spencer Sectional Heater—so much so that even with a low fire it will give positive circulation, an absolute necessity in a hot water heating system.

A reference to the illustration will show the large amount of surface overhanging the fire which has a much greater heat absorbing power than the indirect or flue surfaces. These direct and indirect surfaces being properly proportioned, and with a large combustion space above the fire, full efficiency and economy are assured.



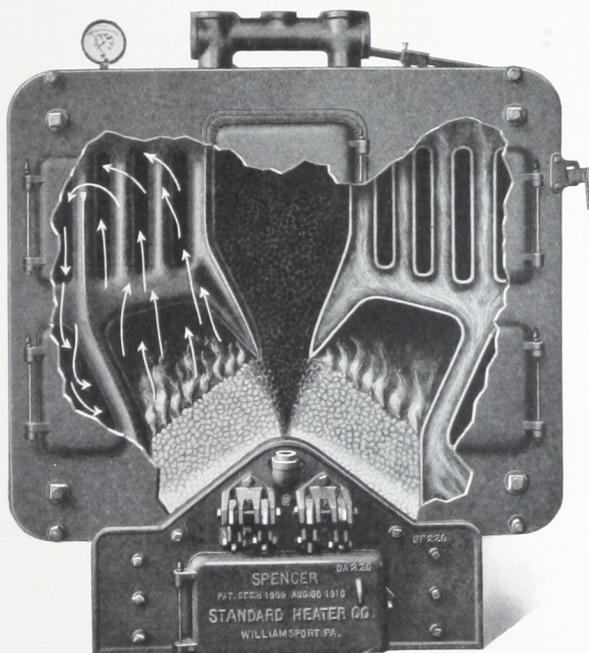
Single Grate Spencer Sectional Hot Water Heater

Spencer Sectional Hot Water Heater

The arrows in the open section of the illustration below show the effect of this direct heat in the circulation of the water. The fire travel is upward to the front and then to the rear. The hot gases envelop the thin water ways and impinge against the back section, so that the greatest possible amount of heat is absorbed before the gases pass through the smoke outlet. The flue ways are so constructed that they may easily be kept clean—and the efficiency and life of a heater depends upon the care and attention that it receives.

Whether you should choose a steam or hot water heater depends largely upon general conditions, and in this you can be guided by the advice of your architect or heating contractor. In either case, the Spencer will prove to be the most economical, labor saving and efficient heater.

The Spencer pays for itself in a few years through reduced fuel cost.



Double Grate Spencer Sectional Water Heater. Showing water-jacketed magazine and sloping grates. Also the arrangement of flues and water-ways to secure perfect circulation and the absorption of the greatest possible amount of heat. On the right side is shown circulation and on the left side combustion travel

Other Important Spencer Features

- Selecting the Proper Size Boiler.
- Ease of Installation.
- Height of Heater.
- Cleaning Tubular Steam or Vapor Heater.
- Cleaning Sectional Heater.
- Tappings for Domestic Hot Water Supply.
- Jackets.
- How to Tend a Spencer Heater.
- How Spencer Heaters are Rated.

Selecting the Proper Size Heater

It is false economy to save on the first cost by buying a boiler less or only equal in capacity to your present needs. You have no reserve for extreme cold weather and no opportunity to increase your radiation if it becomes necessary.

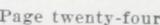
In selecting a boiler you should choose one with a capacity greater than actual requirements.

This insures comfort at all times without forcing. If it is too small you are compelled to drive it to its limit in extreme cold weather. It is always desirable with any boiler to allow a 25% to 30% margin over the required capacity. But any margin allowed on a Spencer rating is actual margin, as Spencer ratings are based upon the actual performance of the boiler under tests.

In this connection, it will be advisable for you to look ahead, bearing in mind that a large percentage of buildings are remodeled or added to. In such a case, a boiler with reserve capacity may save you the cost of installing a new one later.

Ease of Installation

Spencer Heaters are shipped in parts which can be easily assembled in any building, old or new, with little or no inconvenience to the occupants. They can also be installed while another boiler or hot air furnace is being used. Spencers are so built that they can be taken through an ordinary doorway. There is no trouble or expense of tearing out part of the walls.



A Spencer Heater ready for Shipment, no piece too large to go through an ordinary doorway

Cleaning Boilers

Height of Heater Spencer Heaters are only as high as is consistent with their vital requirements, viz: proper depth of ash pit and fire box, and proper spaces for combustion, flue travel, and circulation.

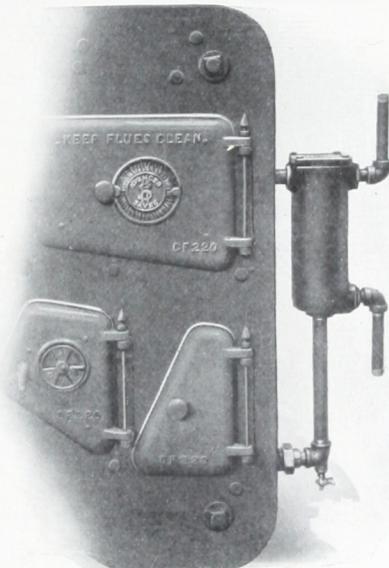
The height of the Spencer magazine from the floor is low enough so that it can easily be filled with little effort.

Cleaning Tubular Steam or Vapor Heater

The Spencer Tubular Steam or Vapor Heater can be easily and quickly cleaned. The smoke flues are cleaned by opening the flue doors and running a brush, provided for this purpose, through them. The soot is thus pushed to the back smoke box, where it can be taken out by removing two small soot doors. The water tubes are cleaned on the outside by means of a scraper through the fire door and gas openings under the flue cover.

Cleaning Sectional Heater The Spencer Sectional Heater is quite as easily cleaned. Open the flue doors, and with a brush pull soot forward into the firebox.

Tappings for Domestic Hot Water Supply All Spencer Heaters have the tappings made at the factory, so that the heating contractor can attach devices for heating water for domestic use. See illustration on this page.



Domestic hot water device attached to Spencer

Jackets Large Spencer Tubular Heaters for steam or vapor are provided at the factory with an insulated jacket, made up of two layers of sheet metal between which is laid $1\frac{1}{2}$ inches of Rock-wool covering. This complete jacket when placed on the boiler requires no further outside covering.

Small Spencer Tubular Heaters and Spencer Sectional Heaters must be covered with not less than 3 inches of plastic asbestos or $1\frac{1}{2}$ inches of plastic magnesia to afford insulation. Otherwise greatest economy cannot be obtained from the heaters.

How to Tend a Spencer Heater

Instead of frequent pokings, when you are tempted to poke the Spencer, don't. Never use the poker to bring down the coal. When you clean the fire, clean it thoroughly according to instructions—then let it alone.

No matter how contrary it may seem to your experience with ordinary boilers, it should be remembered that frequent pokings are both unnecessary and wasteful with the Spencer.

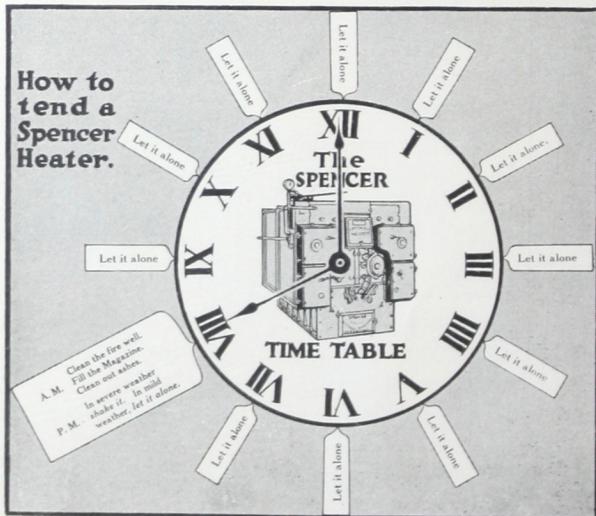
Proper attention at regular hours will result in the steady, even heat which the Spencer is designed to give.

Its automatic action is so exact that it is able to do its work without attention for 10 to 12 hours in any weather.

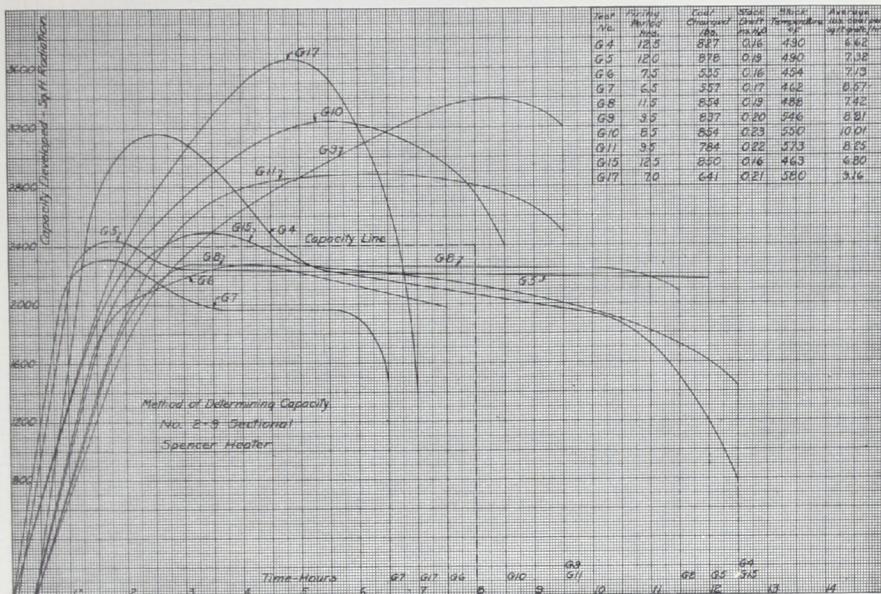
You don't need a special fireman to tend a Spencer.

In large buildings the janitor looks after the fire morning and night, having practically the entire day for his other duties. In residences, fifteen minutes in the morning for shaking, cleaning out and coaling, and five minutes in the evening to prepare it for the night, is all the attention the Spencer requires in ordinary winter weather.

Directions for operating are furnished with each heater.



How Spencer Heaters Are Rated



The curves of this chart were plotted from the results of various tests run to determine capacity of the No. 2-9 Sections Spencer Sectional Steam Heater, rated at 2400 square feet. No. 1 Buckwheat Anthracite was used as fuel.

Every square foot of radiation in its rating actually represents one quarter of a pound of water evaporated per hour, from and at 212° F.

Spencer Heaters are fired and tested at the factory to determine their capacities. Each boiler tested is connected to part of the factory heating system and operated for a long enough time to make thorough observations of its performance characteristics. While being tested, the evaporation is measured by weighing the water fed to the boiler and correcting this weight for all moisture carried over with the steam; the coal fired is weighed; and the ashes removed are weighed. Determinations are made of the heat value of the coal, and of the amount of unburned fuel remaining in the ash. Draft requirements are carefully studied, and all draft and stack temperature observations are recorded.

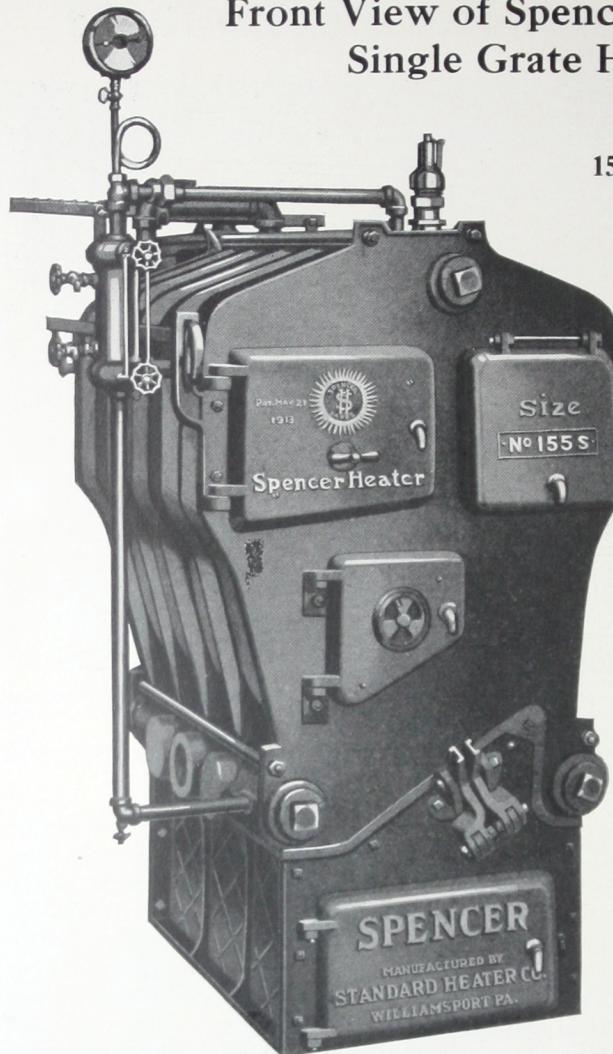
At the end of each firing period, the fire is thoroughly cleaned, and all accumulated ashes and refuse removed.

The commercial rating of a Spencer Heater is thus based upon the actual performance of the boiler. Every square foot of radiation in its rating actually represents one quarter of a pound of water evaporated per hour, from and at 212° F.

Spencer Heater ratings, therefore, are in each case backed up by the ability of the boiler to deliver and sustain the full amount of its rating.

Front View of Spencer Sectional Single Grate Heater

15-inch Series



STEAM TYPE—RATINGS AND DIMENSIONS

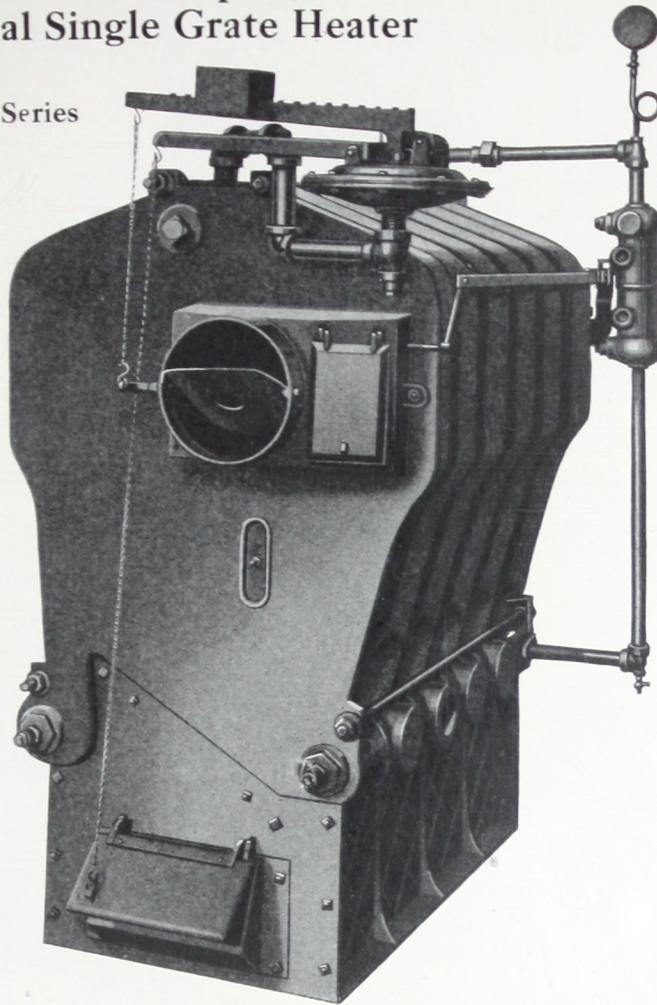
SIZE OF HEATER	15-4	15-5	15-6	15-7	15-8
Rating	Steam Radiation	375 sq. ft.	500 sq. ft.	625 sq. ft.	750 sq. ft.
Draft Required to Develop Rating—Inches Water	{ Size .16	.16	.17	.18	.20
Chimney Flue	{ Height 8 ¹ / ₂ "x8 ¹ / ₂ "	8 ¹ / ₂ "x3 ¹ / ₂ "	10 ¹ / ₂ "x10 ¹ / ₂ "	10 ¹ / ₂ "x10 ¹ / ₂ "	10 ¹ / ₂ "x10 ¹ / ₂ "
Fire Surface	2.29 sq. ft.	3.02 sq. ft.	3.78 sq. ft.	4.54 sq. ft.	5.30 sq. ft.
Heating Surface	32 sq. ft.	42 sq. ft.	51 sq. ft.	61 sq. ft.	71 sq. ft.
Coal Capacity of Magazine	160 lbs.	200 lbs.	250 lbs.	300 lbs.	350 lbs.
Outlets	One 4"	One 4"	One 4"	Two 4"	Two 4"
Returns	Two 3"	Two 3"	Two 3"	Four 3"	Four 3"
Water Line	49"	49"	49"	49"	49"
Dimensions, Overall	{ Length 33"	39 ¹ / ₂ "	47"	54"	62"
	{ Width 33 ¹ / ₂ "	33 ¹ / ₂ "	33 ¹ / ₂ "	33 ¹ / ₂ "	33 ¹ / ₂ "
	{ Height 57"	57"	57"	57"	57"

How Spencer Heaters are Rated see Page 27.

For other dimensions, ask for Dimension Book.

Rear View of Spencer Sectional Single Grate Heater

15-inch Series



WATER TYPE—RATINGS AND DIMENSIONS

SIZE OF HEATER	15-4	15-5	15-6	15-7	15-8
Rating Hot Water Radiation	600 sq. ft.	800 sq. ft.	1000 sq. ft.	1200 sq. ft.	1400 sq. ft.
Draft Required to Develop Rating —Inches Water	.16	.16	.17	.18	.20
Chimney Flue	{ Size 30'	{ Size 8'x8'' 30'	{ Size 10'x10'' 35'	{ Size 10'x10'' 35'	{ Size 10'x10'' 40'
Fire Surface	2.29 sq. ft.	3.02 sq. ft.	3.78 sq. ft.	4.54 sq. ft.	5.30 sq. ft.
Heating Surface	32 sq. ft.	42 sq. ft.	51 sq. ft.	61 sq. ft.	71 sq. ft.
Coal Capacity of Magazine	160 lbs.	200 lbs.	250 lbs.	300 lbs.	350 lbs.
Outlets	One 4"	One 4"	One 4"	Two 4"	Two 4"
Returns	Two 3"	Two 3"	Two 3"	Four 3"	Four 3"
Water Line	{ Length Width Height	33" 33½" 53"	39½" 33½" 53"	47" 33½" 53"	54" 33½" 53"
Dimensions, Overall					
How Spencer Heaters are Rated see Page 27.					

For other dimensions, ask for Dimension Book.

Chimney flue sizes are based on a maximum flue temperature at boiler smoke outlet of 500° F.

**Front View of
Spencer Sectional Double Grate Heater
No. 2 Series**



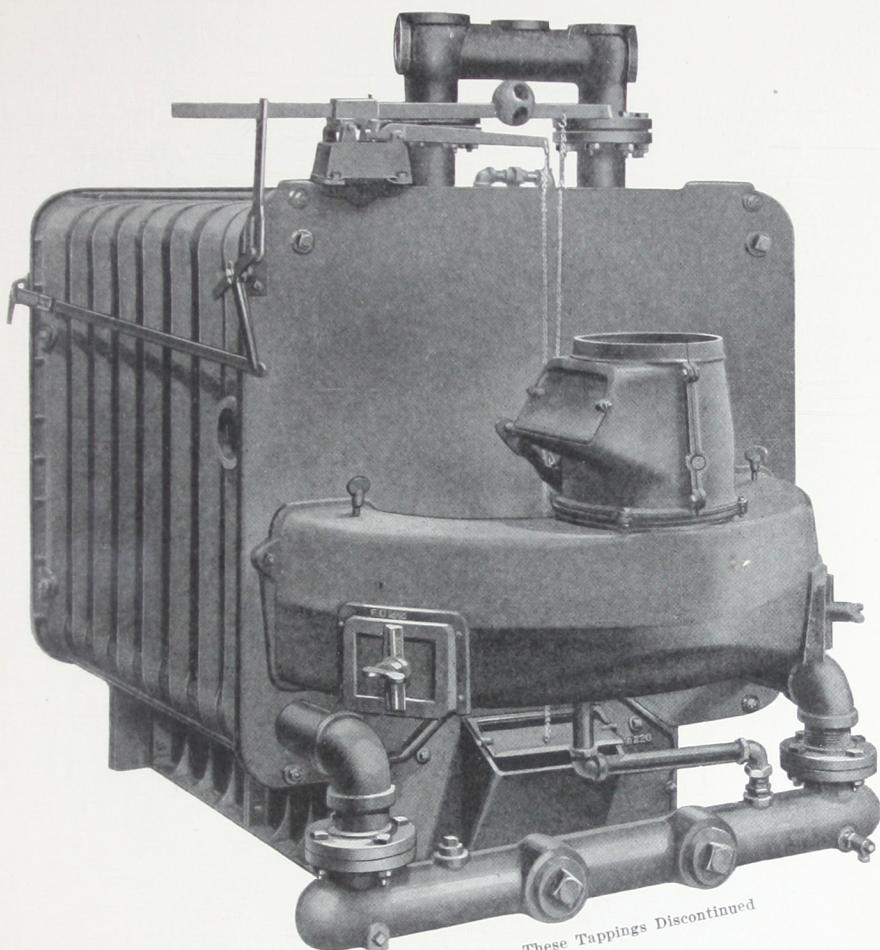
STEAM TYPE—RATINGS AND DIMENSIONS

SIZE OF HEATER	2-5	2-6	2-7	2-8	2-9	2-10	2-11
Rating	1000 sq. ft.	1300 sq. ft.	1600 sq. ft.	2000 sq. ft.	2400 sq. ft.	2800 sq. ft.	3200 sq. ft.
Max. Evap. pr. Hr.—No. 1 Buck.	275 lbs.	345 lbs.	420 lbs.	535 lbs.	650 lbs.	770 lbs.	875 lbs.
Draft Required to Develop Rating —Inches Water	.15	.17	.18	.19	.20	.21	.21
Chimney Flue	{ Size 30' 30'	{ Height 10" x 10' 35'	12" x 12' 35'	12" x 12' 35'	12" x 12' 35'	12" x 12' 40'	12" x 12' 40'
Fire Surface	4.51 sq. ft.	5.64 sq. ft.	6.77 sq. ft.	7.90 sq. ft.	9.03 sq. ft.	10.16 sq. ft.	11.28 sq. ft.
Heating Surface	91 sq. ft.	111 sq. ft.	130 sq. ft.	150 sq. ft.	170 sq. ft.	189 sq. ft.	209 sq. ft.
Coal Capacity of Magazine	375 lbs.	450 lbs.	525 lbs.	600 lbs.	775 lbs.	850 lbs.	925 lbs.
Outlets	Two 4"	Two 4"	Two 4"	Two 4"	Two 4"	Two 4"	Two 4"
Returns	Two 4"	Two 4"	Two 4"	Two 4"	Two 4"	Two 4"	Two 4"
Water Line	50"	50"	50"	50"	50"	50"	50"
Dimensions, Overall...	{ Length 57 5/8" Width 57 5/8" Height 70"	70"	76 1/4"	82 1/2"	88 3/4"	95"	101 1/4"
How Spencer Heaters are Rated see Page 27.			57 5/8"	57 5/8"	57 5/8"	57 5/8"	57 5/8"

For other dimensions, ask for Dimension Book.

Chimney flue sizes are based on a maximum flue temperature at boiler smoke outlet of 500° F.

Rear View of Spencer Sectional Double Grate Heater No. 2 Series



WATER TYPE-RATINGS AND DIMENSIONS

SIZE OF HEATER	2-5	2-6	2-7	2-8	2-9	2-10	2-11
Rating Water	1600 sq.ft.	2100 sq.ft.	2600 sq.ft.	3200 sq.ft.	3800 sq.ft.	4500 sq.ft.	5100 sq.ft.
Max. Btu. per Hr.—No. 1 Buck...	266000	334000	407000	518000	630000	746000	848000
Draft Required to Develop Rating							
—Inches Water15	.17	.18	.19	.20	.21	.21
Chimney Flue { Size	10" x 10"	10" x 10"	12" x 12"	12" x 12"	12" x 12"	12" x 12"	12" x 12"
Chimney Flue { Height	30"	35"	35"	35"	35"	40"	40"
Fire Surface	4.51 sq.ft.	5.64 sq.ft.	6.77 sq.ft.	7.90 sq.ft.	9.03 sq.ft.	10.16 sq.ft.	11.28 sq.ft.
Heating Surface	91 sq. ft.	111 sq. ft.	130 sq. ft.	150 sq. ft.	170 sq. ft.	189 sq. ft.	209 sq. ft.
Coal Capacity of Magazine	375 lbs.	450 lbs.	525 lbs.	600 lbs.	775 lbs.	850 lbs.	925 lbs.
Outlets	Two 4"	Two 4"					
Returns	Two 4"	Two 4"					
Dimensions, Overall { Length	63 3/4"	70"	76 1/4"	82 1/4"	88 3/4"	95"	101 1/4"
Dimensions, Overall { Width	57 5/8"	57 5/8"	57 5/8"	57 5/8"	57 5/8"	57 5/8"	57 5/8"
Dimensions, Overall { Height	70"	70"	70"	70"	70"	70"	70"

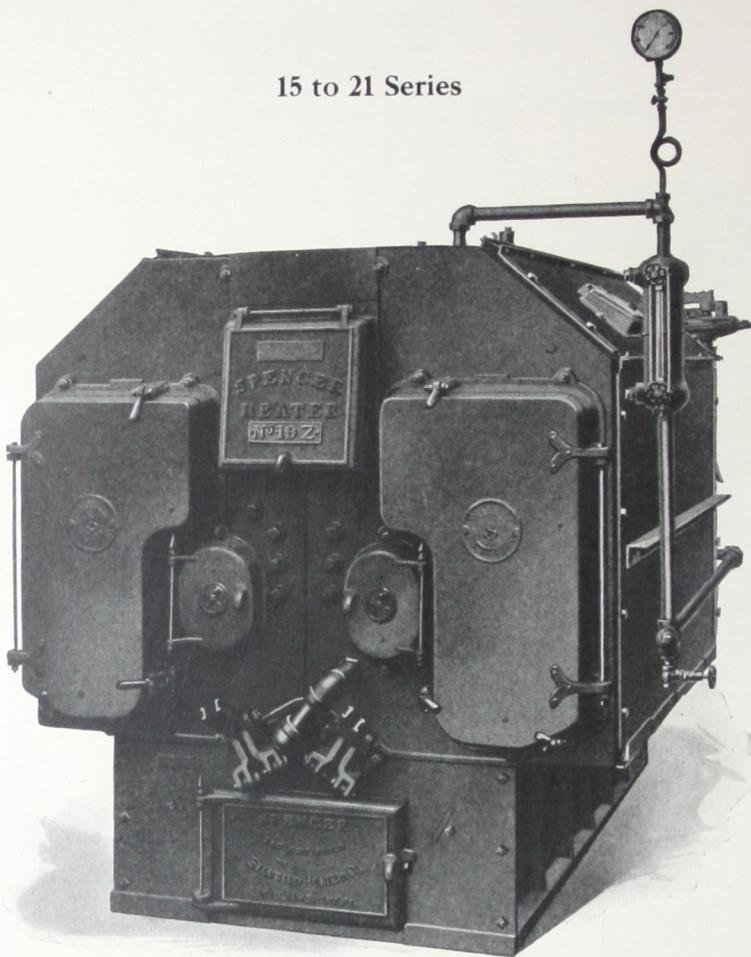
How Spencer Heaters are Rated see Page 27.

For other dimensions, ask for Dimension Book.

Chimney flue sizes are based on a maximum flue temperature at boiler smoke outlet of 500° F.

Front View of Spencer Tubular Steam Heater

15 to 21 Series



SIZE OF HEATER	15	17	19	20	21
Rating Steam Radiation	2000 sq. ft.	2500 sq. ft.	3000 sq. ft.	3500 sq. ft.	4000 sq. ft.
Draft Required to Develop Rating —Inches Water	.23	.24	.25	.26	.27
Chimney Flue..... Size	16"x16"	16"x16"	16"x16"	16"x16"	16"x16"
Height	50'	55'	60'	65'	65'
Fire Surface	12.00 sq. ft.	13.50 sq. ft.	15.00 sq. ft.	16.50 sq. ft.	18.00 sq. ft.
Heating Surface	282 sq. ft.	309 sq. ft.	337 sq. ft.	365 sq. ft.	393 sq. ft.
Coal Capacity of Magazine.....	1000 lbs.	1200 lbs.	1400 lbs.	1550 lbs.	1700 lbs.
Outlets	Two 4"				
Returns	Two 3"				
Water Line	56"	56"	56"	56"	56"
Dimensions, Overall..... Length	71"	77"	83"	89"	95"
Width	60"	60"	60"	60"	60"
Height	65"	65"	65"	65"	65"

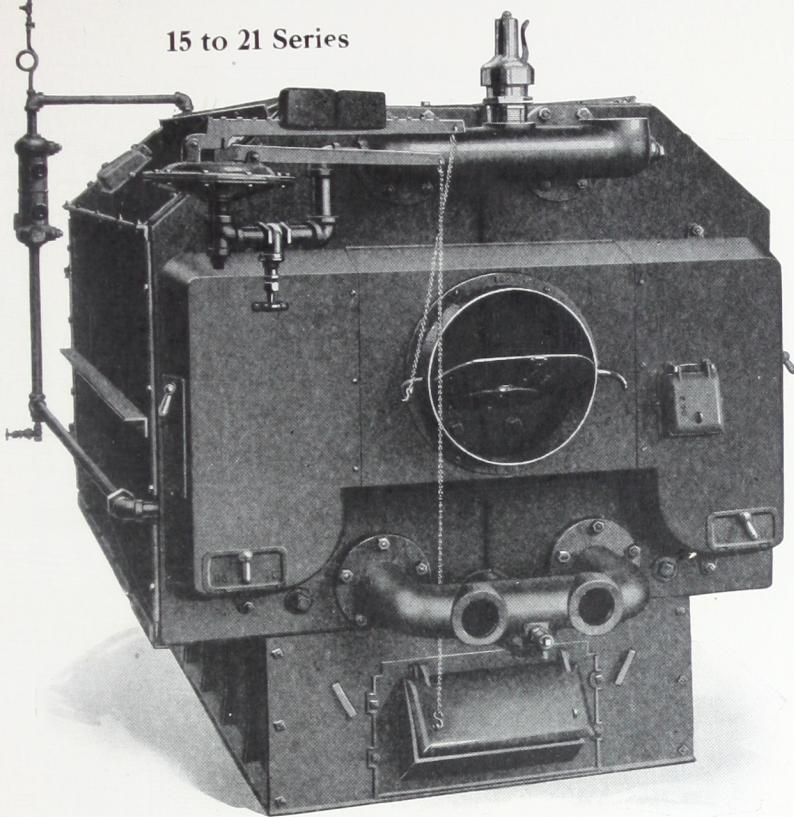
How Spencer Heaters are Rated see Page 27.

For other dimensions, ask for Dimension Book.

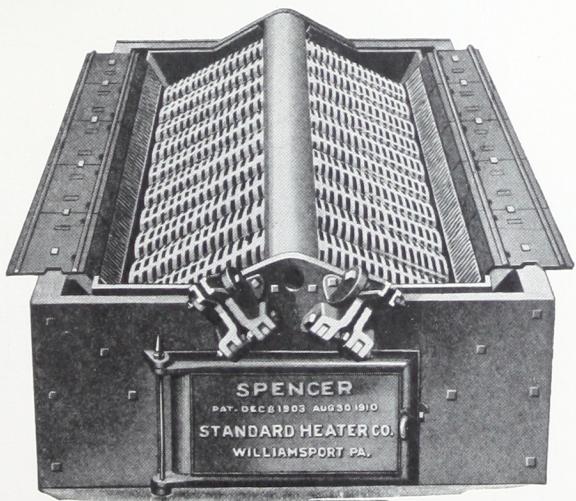
Chimney flue sizes are based on a maximum flue temperature at boiler smoke outlet of 500° F.
Page thirty-two

Rear View of Spencer Tubular Steam Heater

15 to 21 Series

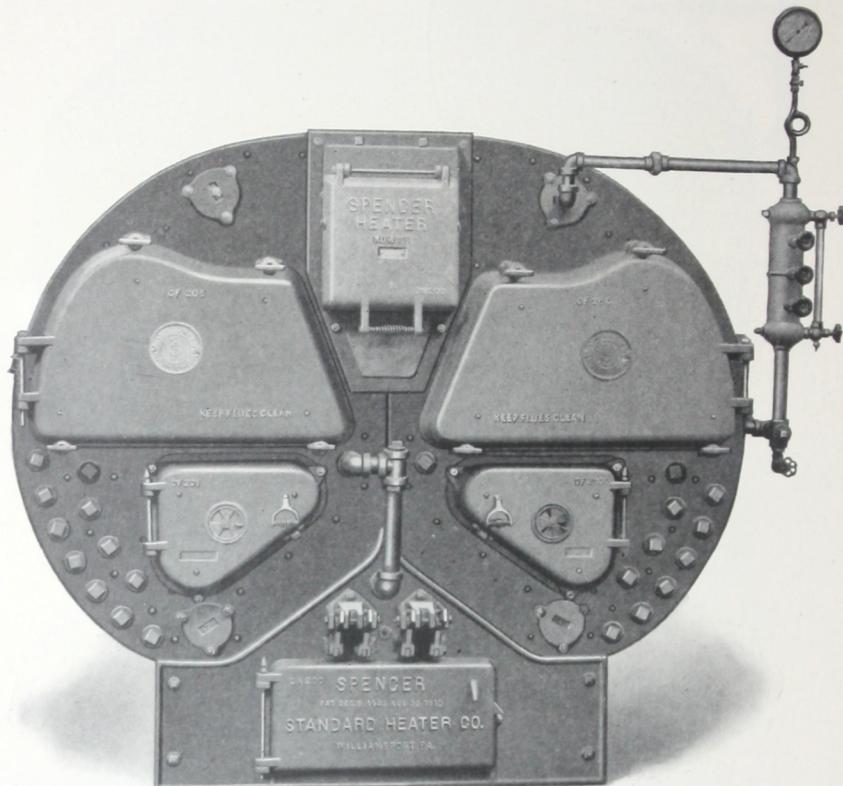


Base and Grates
for the above



Front View of Spencer Tubular Steam Heater

50 Series



STEAM TYPE—RATINGS AND DIMENSIONS

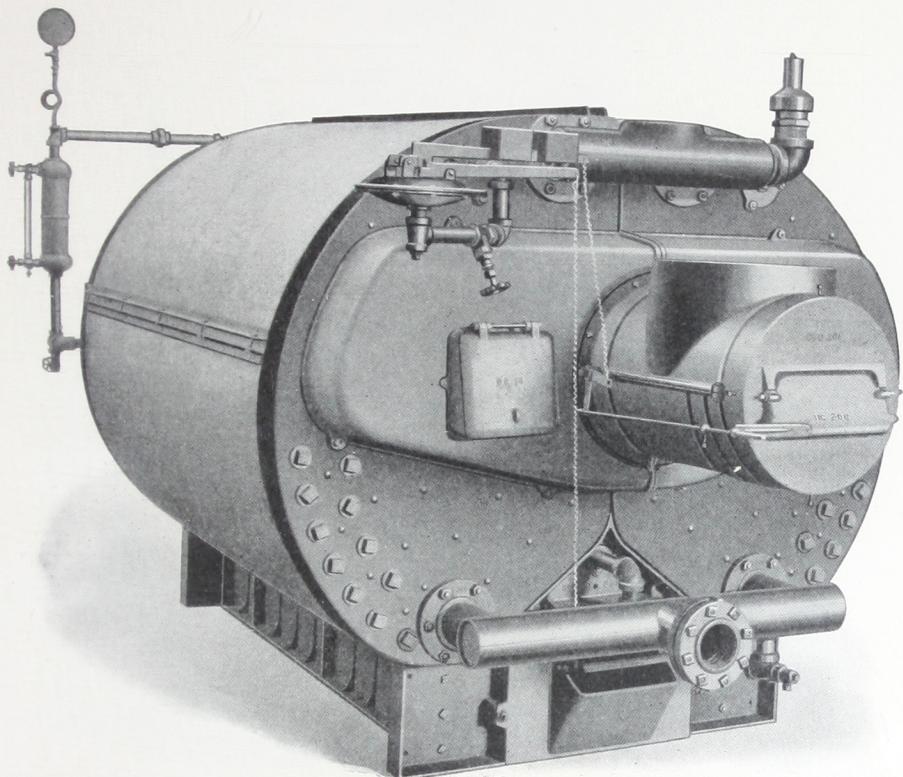
SIZE OF HEATER	3-45	3-50	3-55	3-60	3-70
Rating	Steam Radiation				
	4500 sq. ft.	5000 sq. ft.	5500 sq. ft.	6000 sq. ft.	7000 sq. ft.
Max. Evap. per Hr.—No. 1 Buckwheat	1245 lbs.	1400 lbs.	1526 lbs.	1635 lbs.	1800 lbs.
Draft Required to Develop Rating					
—Inches Water	.24	.25	.26	.27	.28
Chimney Flue	{ Size Height	18" x 18" 50"	18" x 18" 55"	18" x 18" 60"	18" x 18" 65"
Fire Surface	18.05 sq. ft.	20.24 sq. ft.	22.56 sq. ft.	24.83 sq. ft.	27.00 sq. ft.
Heating Surface	389 sq. ft.	429 sq. ft.	468 sq. ft.	506 sq. ft.	547 sq. ft.
Coal Capacity of Magazine	1500 lbs.	1700 lbs.	1900 lbs.	2100 lbs.	2300 lbs.
Outlets	Two 5"	Two 5"	Two 5"	Two 5"	Two 5"
Returns	One 4"	One 4"	One 4"	One 4"	One 4"
Water Line	.59"	.59"	.59"	.59"	.59"
Dimensions, Overall	{ Length Width Height	107 3/4" 81" 75"	114" 81" 75"	120 1/4" 81" 75"	126 1/2" 81" 75"
How Spencer Heaters are Rated see Page 27.					

For other dimensions, ask for Dimension Book.

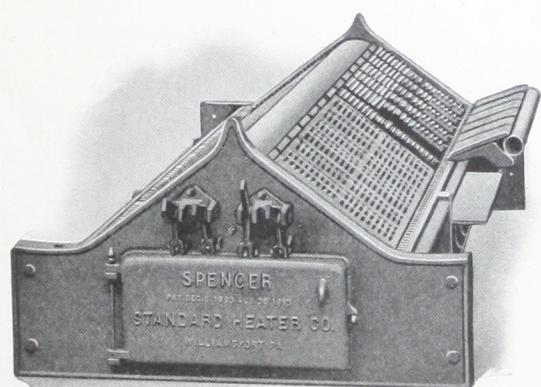
Chimney flue sizes are based on a maximum flue temperature at boiler smoke outlet of 500° F.
Page thirty-four

Rear View of Spencer Tubular Steam Heater

50 Series

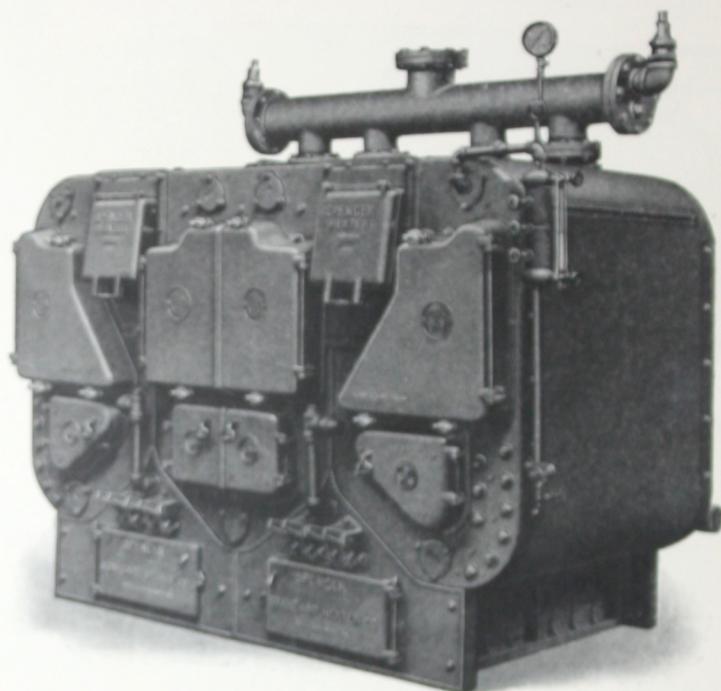


Base and Grates
for the above



Front View of Spencer Tubular Steam Heater

100 Series



STEAM TYPE—RATINGS AND DIMENSIONS

SIZE OF HEATER	3-80	3-90	3-105	3-120	3-140	3-160
Rating..... Steam Radiation	8000 sq. ft.	9000 sq. ft.	10500 sq. ft.	12000 sq. ft.	14000 sq. ft.	16000 sq. ft.
Max. Evap. per Hr.—No. 1 Back...	2120 lbs.	2430 lbs.	2860 lbs.	3320 lbs.	3875 lbs.	4400 lbs.
Draft Reg. Dev. Rating—In. Water	.27	.28	.29	.30	.32	.34
Chimney Flue..... Size	20" x 20"	20" x 20"	22" x 22"	24" x 24"	24" x 24"	24" x 24"
Chimney Flue..... Height	65'	65'	65'	70'	70'	70'
Fire Surface.....	36.35 sq. ft.	34.70 sq. ft.	39.05 sq. ft.	43.40 sq. ft.	47.75 sq. ft.	52.10 sq. ft.
Heating Surface.....	560 sq. ft.	621 sq. ft.	683 sq. ft.	745 sq. ft.	807 sq. ft.	869 sq. ft.
Comb Capacity of Magazine.....	2250 lbs.	2600 lbs.	2950 lbs.	3300 lbs.	3600 lbs.	3900 lbs.
Outlets.....	One 8"					
Returns.....	One 4"					
Water Line.....	66"	66"	66"	66"	66"	66"
Dimensions, Overall... Length	101 5/8"	107 5/8"	114"	120 5/8"	126 5/8"	132 5/8"
Dimensions, Overall... Width	118 5/8"	118 5/8"	118 5/8"	118 5/8"	118 5/8"	118 5/8"
Dimensions, Overall... Height	99"	99"	99"	99"	99"	99"

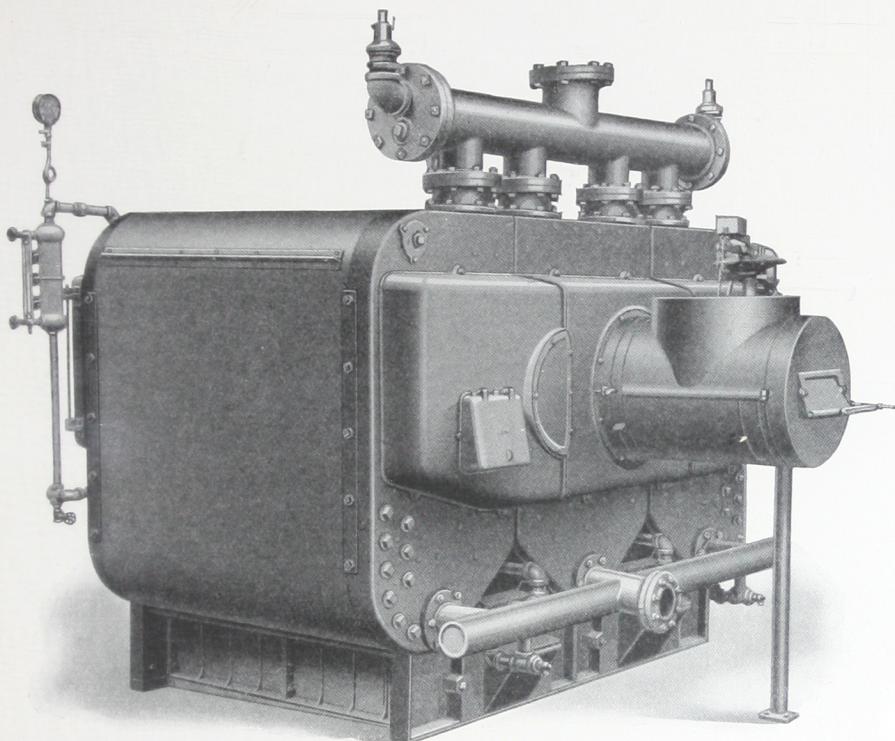
How Spencer Heaters are Rated see Page 27.

For other dimensions, refer to Dimension Book.

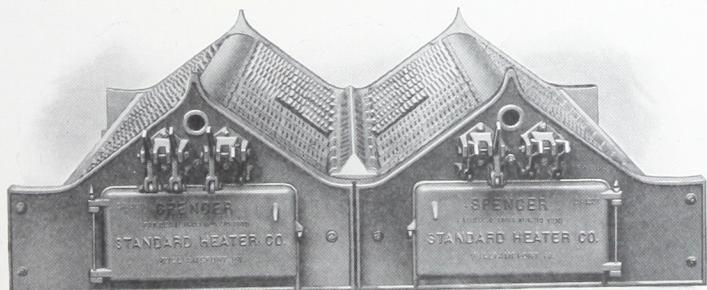
Chimney flue sizes are based on a maximum flue temperature at boiler smoke outlet of 500° F.

Rear View of Spencer Tubular Steam Heater

100 Series



Base and
Grates for
the above



Send for list of Spencer Installations in your city



D. Frank Dillon Residence, Leominster, Mass.
Architect: J. Williams Beal, Boston, Mass.
Heating Contractor: Cragin & Wilkins, Leominster.

D. M. DILLON STEAM BOILER WORKS
FITCHBURG, MASS.

Standard Heater Co.,
Williamsport, Pa.

Gentlemen:

My Spencer Heater has been giving good satisfaction. I burn buckwheat coal almost entirely.

This heater requires no particular attention, with the exception of keeping the tubes clean inside and outside, in order to get the best efficiency. It is a quick steamer and I consider that I am getting first class satisfaction from its use.

Yours truly,
D. FRANK DILLON

FAIRFAX APARTMENT COMPANY, PHILADELPHIA, PA.

Standard Heater Co.,
Williamsport, Pa.

Gentlemen:

This is to advise that at the Fairfax Apartments in Germantown, Philadelphia, we have had Spencer Magazine Heaters in constant use for the past nine years.

They have given perfect satisfaction, the building being rather over-heated, and the consumption of coal has been exceedingly modest in the judgment of the owners of the building.

The up-keep of the boilers, including all kind of repairs, for the past three years has amounted to very little.

Respectfully yours,

FAIRFAX APARTMENT COMPANY,
JACOB J. SEEDS, Sec'y



The Fairfax Apartments—School Lane and Wayne Ave., Germantown, Philadelphia.
Architect: Horace Trumbauer, Philadelphia.
Heating Contractor: J. Borden & Bros., Phila.

GENERAL ELECTRIC COMPANY SCHENECTADY, N. Y.

Standard Heater Co.,
Williamsport, Pa.

Gentlemen:

You may be interested in the result of several years' experience I have had with Spencer Heaters.

I had a magazine boiler installed with a rating of 4,050 feet of radiation. I replaced it with two Spencer Heaters, each radiating 2000 feet.

It was impossible to heat the house so that it was comfortable when the outside temperature was 30 degrees F. with the old large boiler. I find I can heat the house with one of the Spencer Heaters rating 2000 feet. I have had no difficulty in heating the house with both boilers running at 20 below zero with a strong wind blowing; in fact, the performance of the boilers has been so satisfactory that I have added 15 per cent. to the radiation.

I have never seen a boiler installation which was more satisfactory.

Yours very truly,
C. W. STONE

GEORGE R. DEBNAM, JR. Real Estate and Apartments BALTIMORE, MD.

Standard Heater Company,
Williamsport, Pa.

Gentlemen:

The best recommendation I can give you regarding Spencer Heaters installed in buildings under my direction, is that your fifteenth installation for us is now nearing completion.

The first Spencer Heater we purchased from you about eight years ago is still in first-class working order and accomplishing all the results expected. Since that time we have had installed two of your boilers in the Burford Apartment House, three in the Carlton Apartment House, three in the DeSoto Apartment House, two in the Eden Hall Apartment House, one in the Fenway Garage, three in the Geneva Apartment House and one in my private residence. All of these boilers, outside of some minor adjustments, have given entire satisfaction.

Yours very truly,
GEO. R. DEBNAM, JR.



Carlton Apartments—3509 N. Charles St., Baltimore, Md.

Architect: Parker, Thomas & Rice, Baltimore.
Heating Contractor: Enterprise Steam & Hot Water Heating Co., Baltimore, Md.

Send for list of Spencer Installations in your city



G. Edwin Brumbaugh Residence, Gwynedd, Pa.

G. EDWIN BRUMBAUGH

Architect

PHILADELPHIA, PA.

Standard Heater Co.,
Williamsport, Pa.

Gentlemen:

Six years ago I installed a Spencer Heater in my residence. The boiler has been satisfactory in every way. It is possible to shut off the draft for 8 hours, with a drop of only 15° in the system.

It is a pleasure to recommend the Spencer to my clients.

Sincerely yours,
G. EDWIN BRUMBAUGH.

SAGE FOUNDATION HOMES COMPANY FOREST HILLS GARDENS, L. I.

Standard Heater Co.,
Williamsport, Pa.

Gentlemen:

Complying with your request for a statement concerning the Spencer Magazine Feed Heater, I beg to state that we have installed Spencers almost exclusively for the past six or seven years. From practical experience we find them, from the standpoint of economy and efficiency, to be the most satisfactory boilers for domestic purposes.

Yours very truly,
JOHN M. DEMAREST, PRES.



Fred Stone Residence, Forest Hills Gardens, L. I.
One of the Sage Foundation Homes.



Eureka Specialty Printing Co., Scranton, Pa.
Architect: J. H. Davey, Scranton, Pa.
Heating Contractor: Gaylord & Butler, Scranton

EUREKA SPECIALTY PRINTING CO. SCRANTON, PA.

Standard Heater Co.,
Williamsport, Pa.

Gentlemen:

About fifteen years ago we scrapped a sectional cast iron steam heater, and installed a Spencer Heater. In place of stove coal, we commenced using Buckwheat. We are using four No. 16 Spencer Heaters, heating our entire building satisfactorily and economically.

We unquestionably recommend the Spencer Heater as an efficient steam generator at a minimum cost for amount of steam generated per pound of fuel used and a minimum of operating expense. Our day watchman takes care of the boilers for 12 hours and our night watchman for the same length of time. Both men have many other duties.

We have had very little expense for upkeep.

Yours very truly,
PAUL W. GARDNER, Asst. Sec'y

HERMAN CRAMER NEW YORK CITY, N. Y.

Standard Heater Co.,
Williamsport, Pa.

Gentlemen:

It may be interesting to you to know that a 13-B Spencer Tubular Steam Heater installed at my apartment house, 1123 Clay Avenue, New York City, in 1911, is still operating with the original grate bars and still continues to give exceptional service.

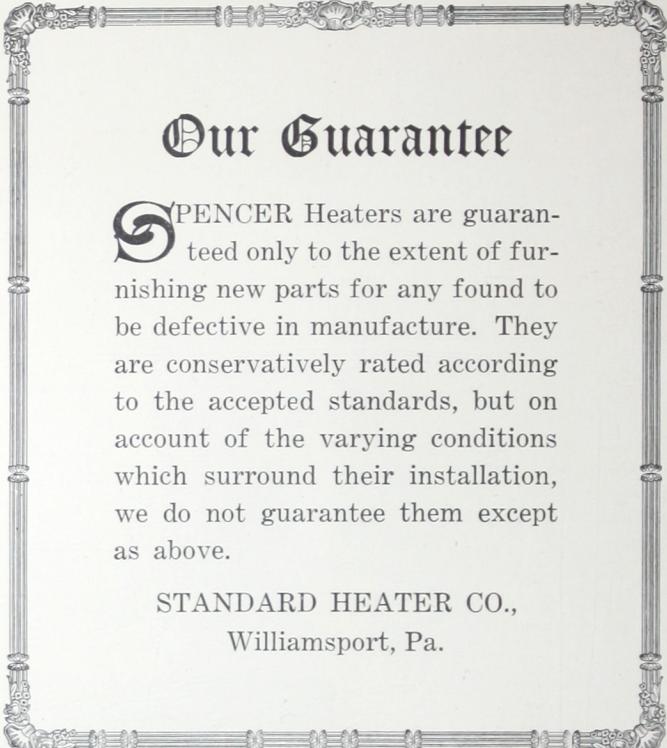
For the purpose of comparison, in my neighbor's apartment house next door, which is an exact duplicate of my building, an ordinary surface feed boiler consumed considerably more coal than my Spencer, at an additional heating cost of about \$300.00 per year.

In addition to this I want to say that my Spencer operates with very little attention and over a period of eleven years service, has not averaged \$3.00 a year for repairs.

Yours very truly,
HERMAN CRAMER

Herman Cramer Apartment House, 1123 Clay Ave., New York City.
Heating Contractor: H. Belmont & Son, 157 E. 44th St., New York City.





Our Guarantee

SPENCER Heaters are guaranteed only to the extent of furnishing new parts for any found to be defective in manufacture. They are conservatively rated according to the accepted standards, but on account of the varying conditions which surround their installation, we do not guarantee them except as above.

STANDARD HEATER CO.,
Williamsport, Pa.

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Spencer Steam, Vapor, Hot Water Heaters

